

SGP.12a

## Specification

<b>Part No.</b>	SGP.1575.12.4.A.02
<b>Product Name</b>	GPS SMT Patch Antenna
<b>Features</b>	<p>12mm*12mm*4.5mm          1575MHz Centre Frequency          Patent Pending</p> <p>RoHS Compliant</p>

# 1. Introduction

This ceramic GPS patch antenna is based on smart **XtremeGain™** technology. It is mounted via SMT process and has been selected as optimal solution for the 45x45mm ground plane.

# 2. Specification

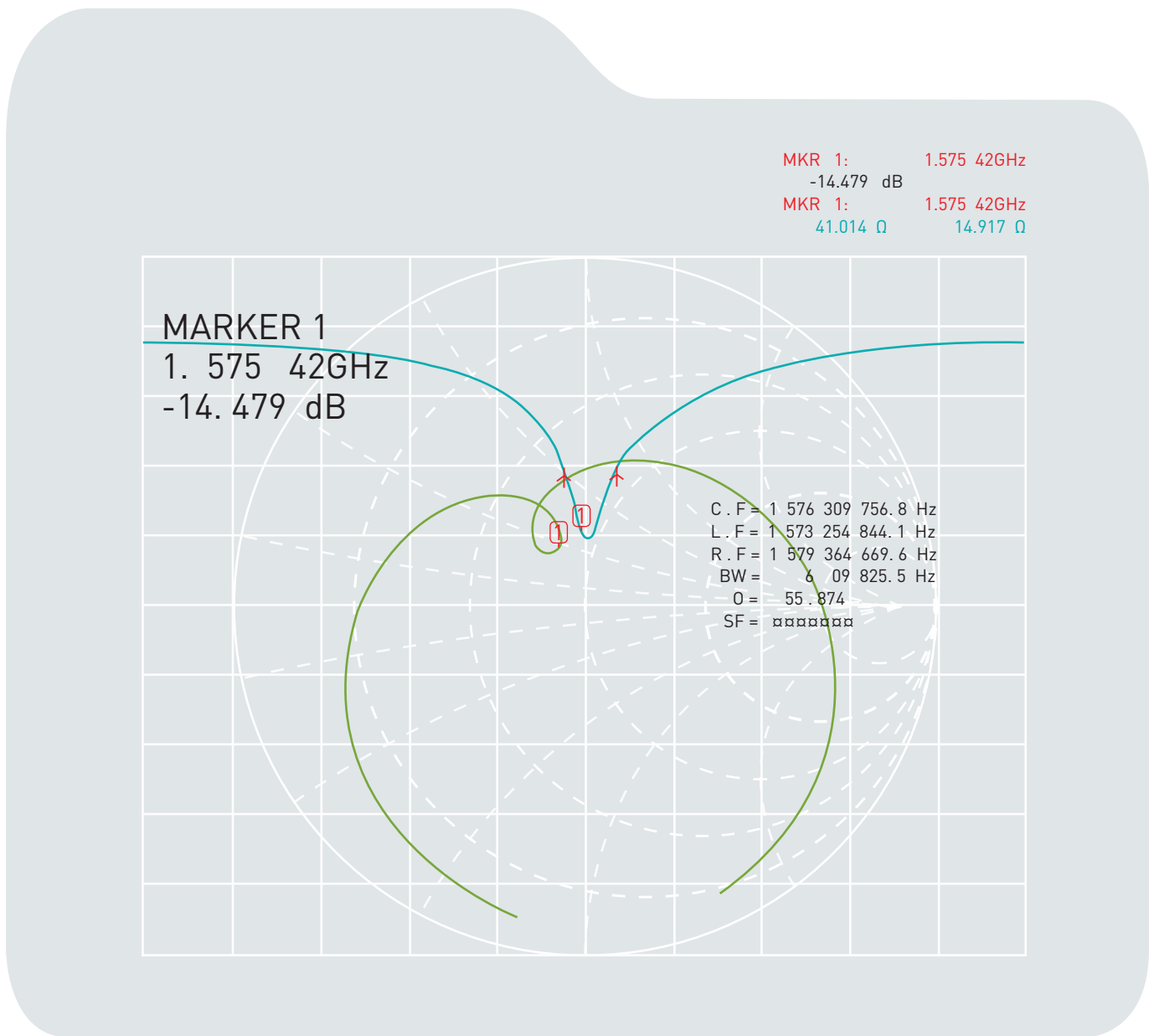
## Original Patch Specification tested on 45mm ground plane

Parameter	Specification	Notes
Range of Receiving Frequency	1575.42 ± 1.023MHz	
Center Frequency	1575.42 ± 3MHz	With 45*45mm ground plane
Bandwidth	4MHz min	Return Loss ≤-10 dB
Return Loss	≤-10 dB	
VSWR	1.5 max	
Gain at Zenith	- 1.0 dBic typ.	
Gain at 10° elevation	- 1.5 dBic typ.	
Axial Ratio	4.0 dB max	
Polarization	RHCP	
Impedance	50 Ohms	
Frequency Temperature Coefficient (τf)	0 ± 20ppm / °C	-40°C to +85°C
Operating Temperature	-40°C to +85°C	

**\*\*Changes in user groundplane and environment will offset centre frequency**

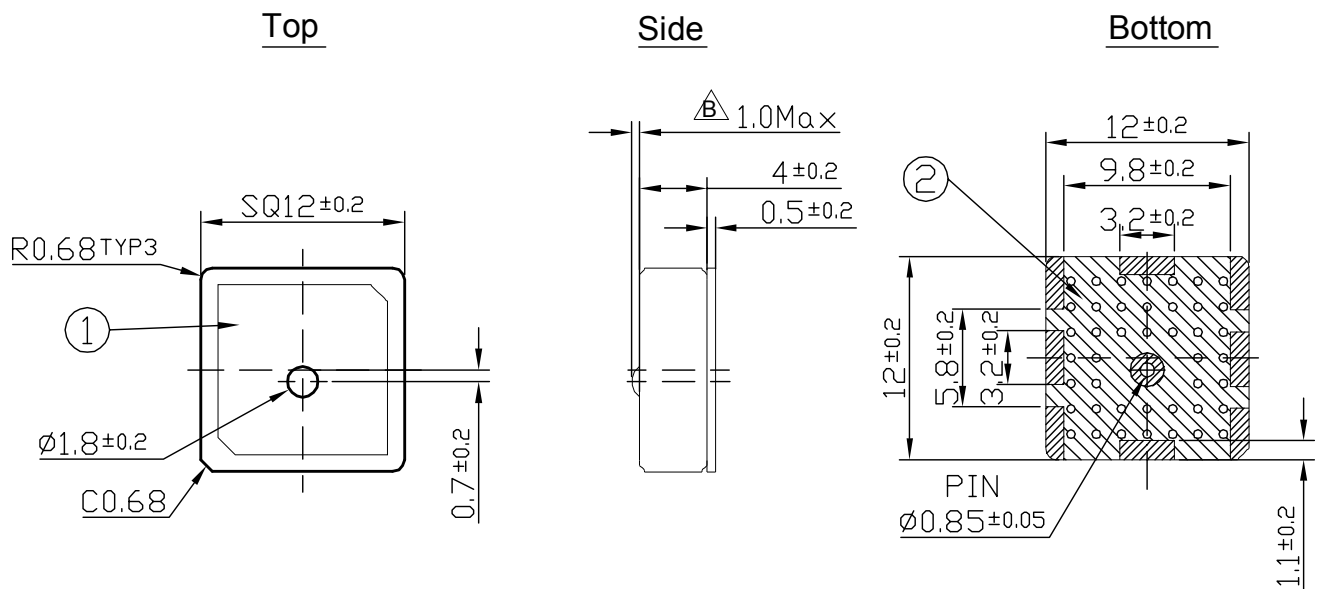
### 3. Electrical Specifications

#### 3.1 Return Loss, SWR, Impedance, measured on the test fixture



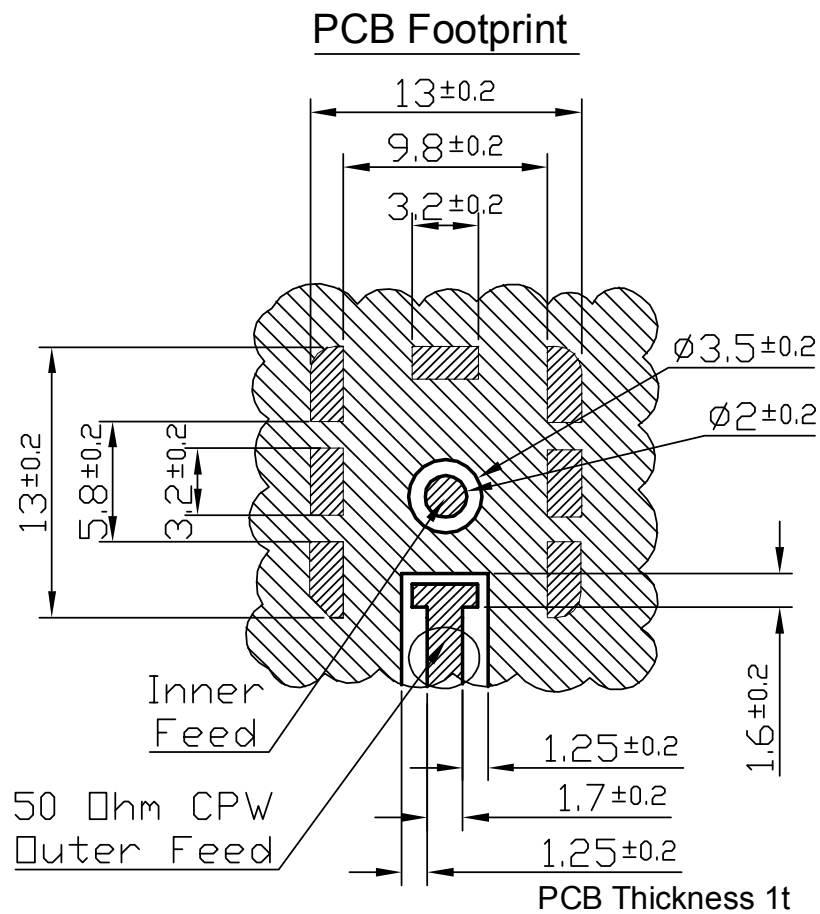
## 4. Mechanical Specifications

### 4.1 Dimensions and Drawing



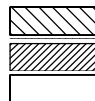
	Name	Part No.	Material	Finish	Quantity
1	SGP.12 Patch 12x12x4	SGP.12	Ceramic	Clear	1
2	SGP.12 PCB		FR 0.5t	Green	1

## 4.2 Antenna footprint

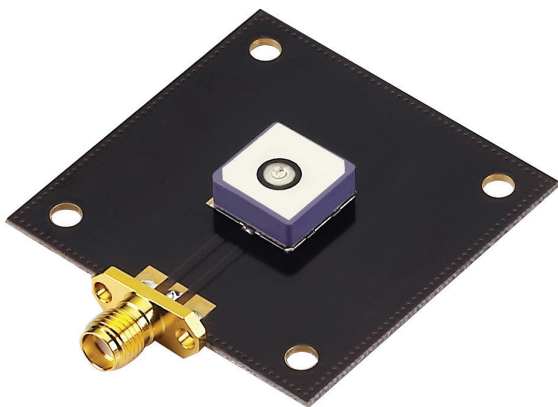
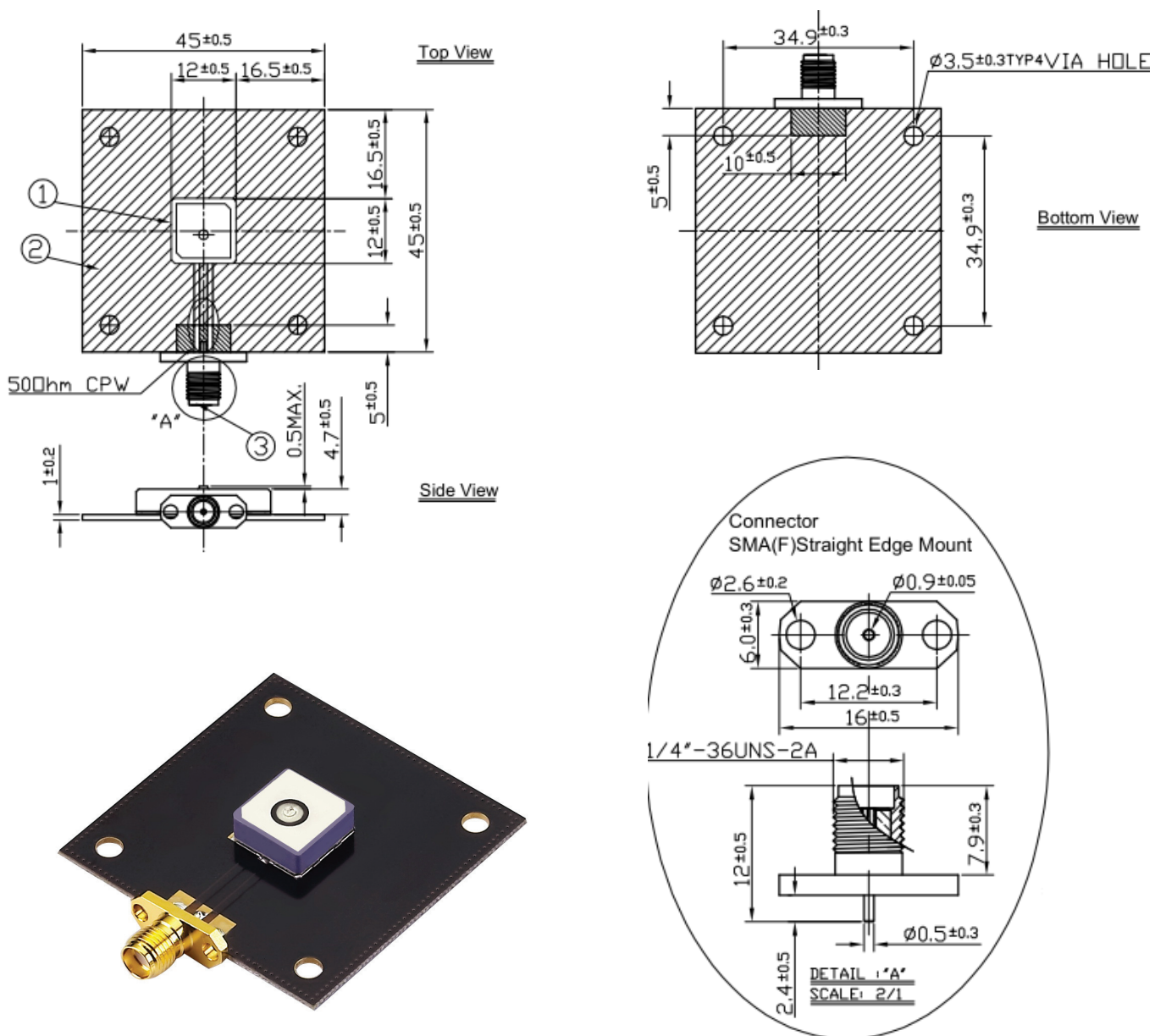


**NOTE:**

1. Solder mask.
2. Area to be soldered.
3. Clearance area.
4. Dimension of 50 Ohm CPW dependent on individual board.
5. Must be soldered to complete antenna feed connection.

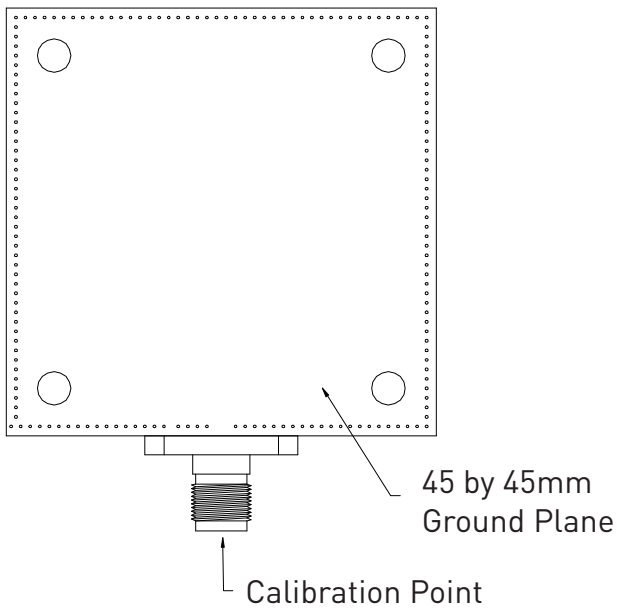


### 4.3 Test Jig and Dimension

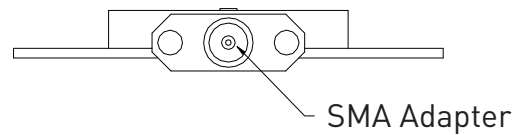
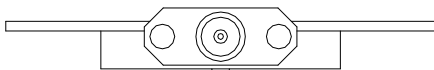
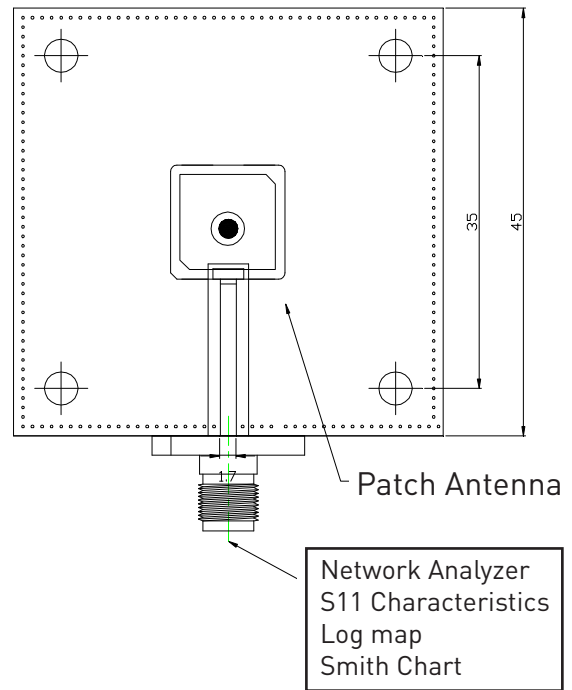


## 4.4 Test Fixture set up and measurements

Test Fixture



Antenna Setup  
& Measurements



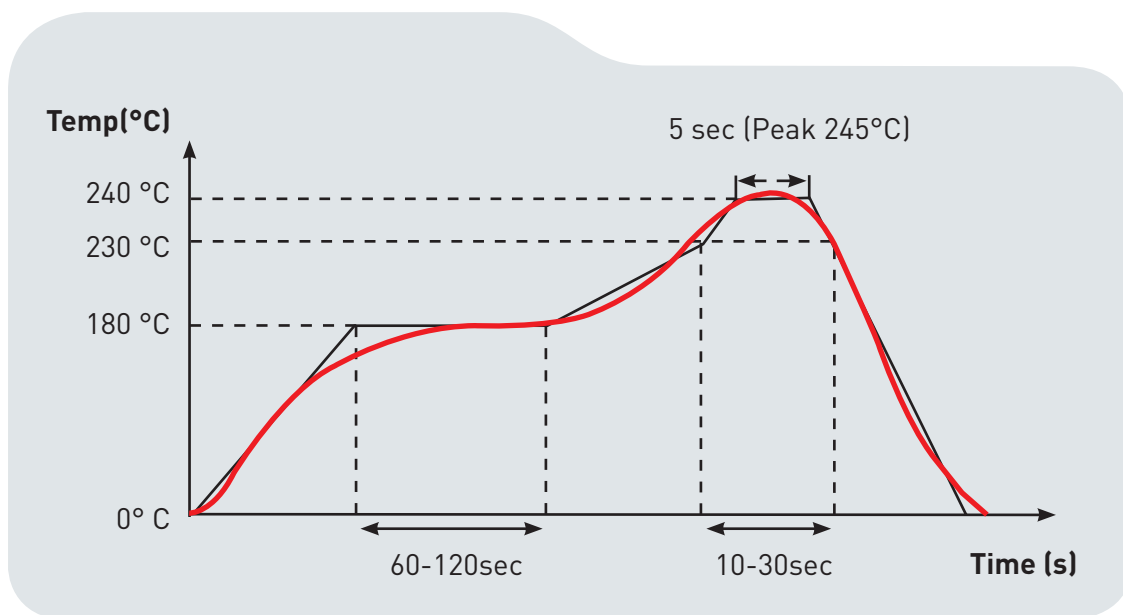
## 5. Antenna Recommended Soldering Conditions

### 5.1 Flux, Solder

- Use rosin-based flux. Don't use highly acidic flux with halide content exceeding 0.2wt%(chlorine conversion value).
- Use Sn solder.

### 5.2 Reflow Soldering Conditions

- Pre-heating should be in such a way that the temperature difference between solder and product surface is limited to 150°C max. Cooling into solvent after soldering also should be in such a way that temperature difference is limited to 100°C max. Unwrought pre-heating may cause cracks on the product, resulting in the deterioration of products quality.



### 5.3 Reflow with Soldering Iron

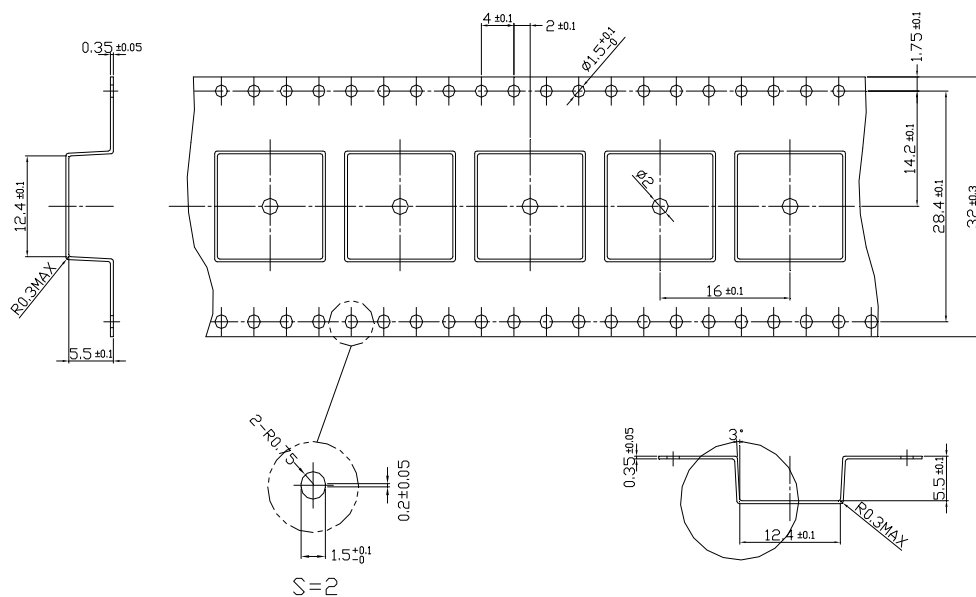
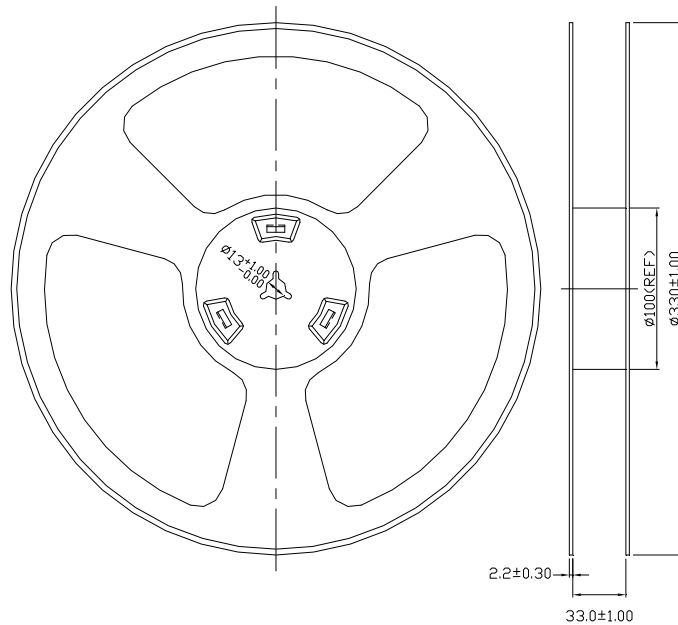
- The following conditions must be strictly followed when using a soldering iron.

<b>Pre-heating</b>	150°, 1 min
<b>Tip temperature</b>	290° max
<b>Soldering iron output</b>	30w max
<b>Soldering time</b>	3 second max



## 6. Packaging

500 pcs / reel / inner carton  
5 reels in an outer carton (2500)



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